Quarterly Analytic Review Meeting

April 16, 1997

Presented by Phil Patterson

Supported by the Laboratory Analytic Team
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Analytic Homepage

- Internet Address: http://www.ott.doe.gov/fact.html
- Updated Weekly
- QM98 Impacts are Downloadable in PDF Format
- Starting to Upload Analytic Products
- About1300 hits so far--50 to 100 a week
- Will Post Results of This Meeting

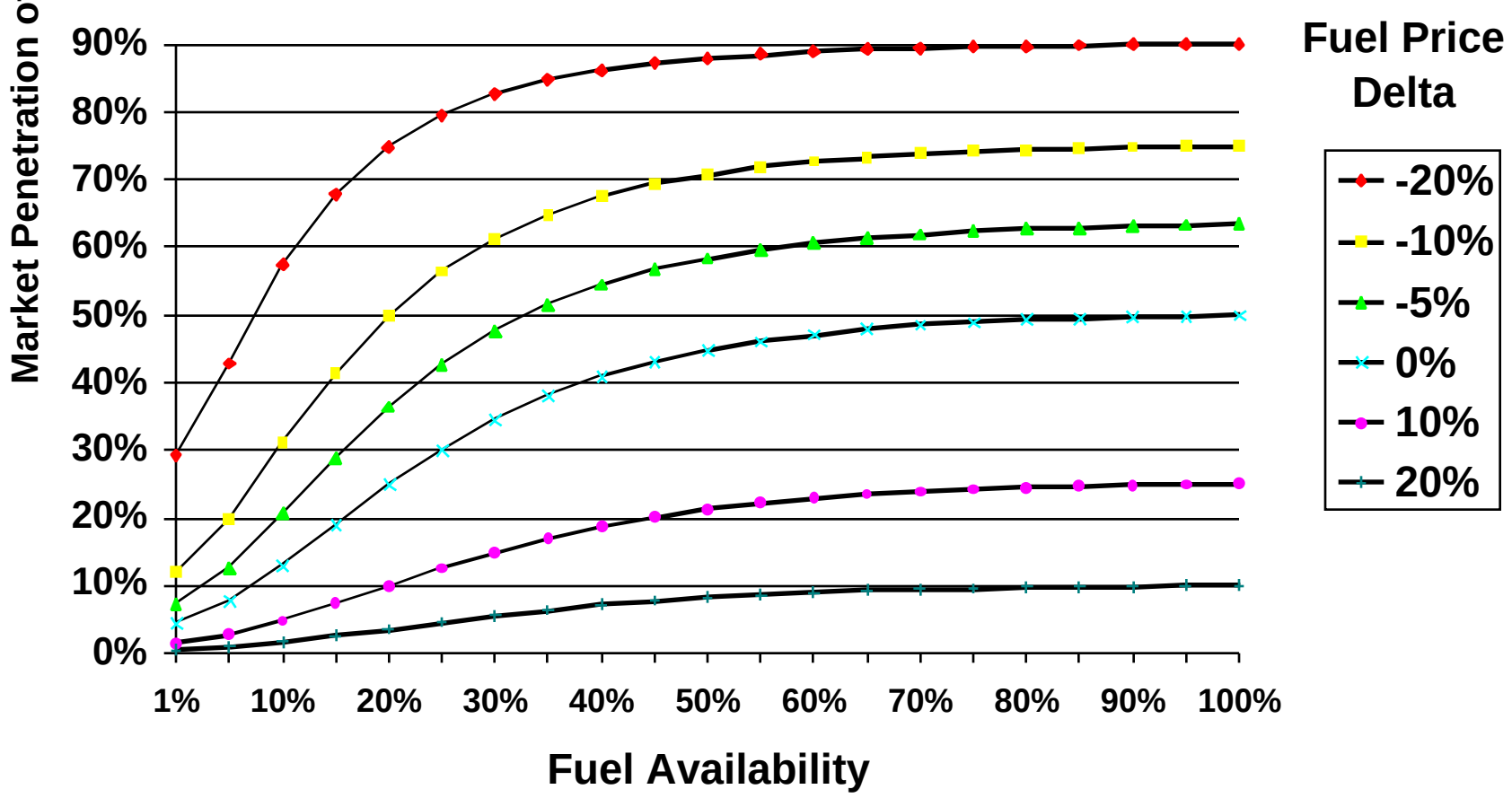
Omnibus National Survey Service

- Nationwide telephone survey of 1000 adults on a weekly basis
- Results by demographic group: sex, age, region, race, income, HH size, education, etc.
- Results to date
  - Willingness to pay for 2X: $3500+--21%, $2k to $3500--11%, $1k to $2k--49%, < $1000--11%, None--10%.
  - Most important vehicle attribute: Dependability--33%, Safety--28%, Quality--19%, Low Price--10%, Fuel Economy--7%.
  - Most valuable safety attribute: Airbag--29%, Brakes--13%, Seat Belt--11%, Weight--9%, Size--7%.
  - Alternative fuel preference curve: Greene asked a series a questions to develop new curves for consumer preference of alternative fuels as a function of price.

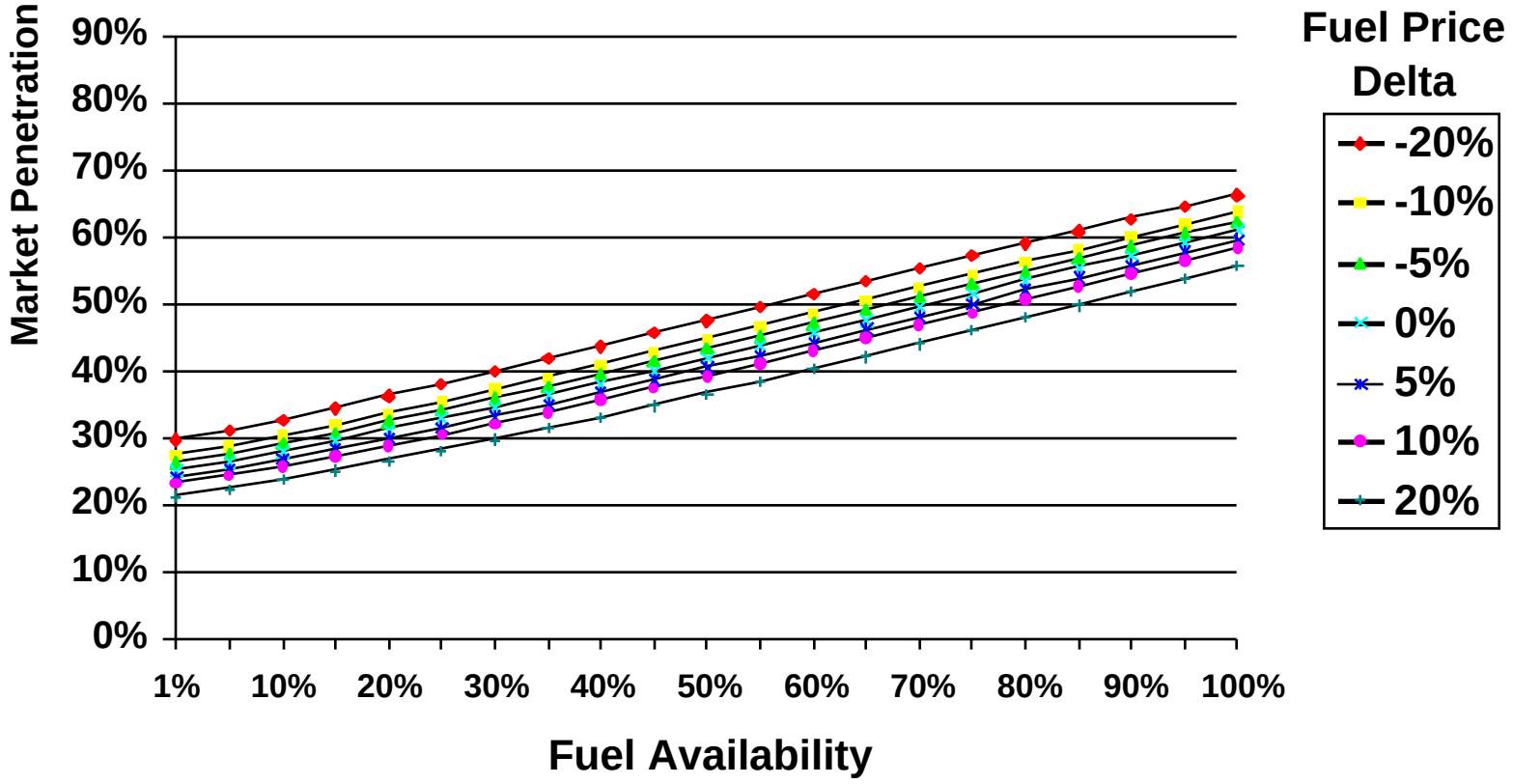
Model Updates

- Lower MPG Projections - AEO'97
- Lower Fuel Prices - AEO'97
- New Fuel Choice Algorithm For Multifuel and Dual Fuel Vehicles
- Pending - Vehicle Choice Model Reflecting CA Consumer Preference

New Multifuel Choice



Old Multifuel Choice



Coordination with EIA / NEMS

- Old vs. New Choice Coefficients
- Nesting Issues - Vehicles vs. Technology
- Market Segmentation - Size Classes
- Fuel Economy Projections
- Heavy Truck Modeling
- EIA Ethanol Model

Scenarios

- QM'98 Run #OTTI-96.F
- Current Scenario Analysis
  - Fuels vs. Efficiency
  - Stand Alone Technology
  - High Tech. vs. Low Tech.

  Run #'s OTTI-97.0 - OTTI-97.8
- GHG Scenarios

  Run #'s OTTI-97.10 - OTTI-97.18

Scenario Assumptions

	OTTI-96.F	OTTI-97.0
Conventional Fuel Economy	AEO'96	AEO'97
Fuel Prices	AEO'96	AEO'97
Multifuel Choice Algorithm	Fulton AVS 8.1	Greene TAFV
Technology Characteristics	QM'98	QM'98

Miscellaneous Diesel Analysis

Auto Show Surveys

For your next new vehicle purchase, would you consider buying a diesel-powered vehicle?

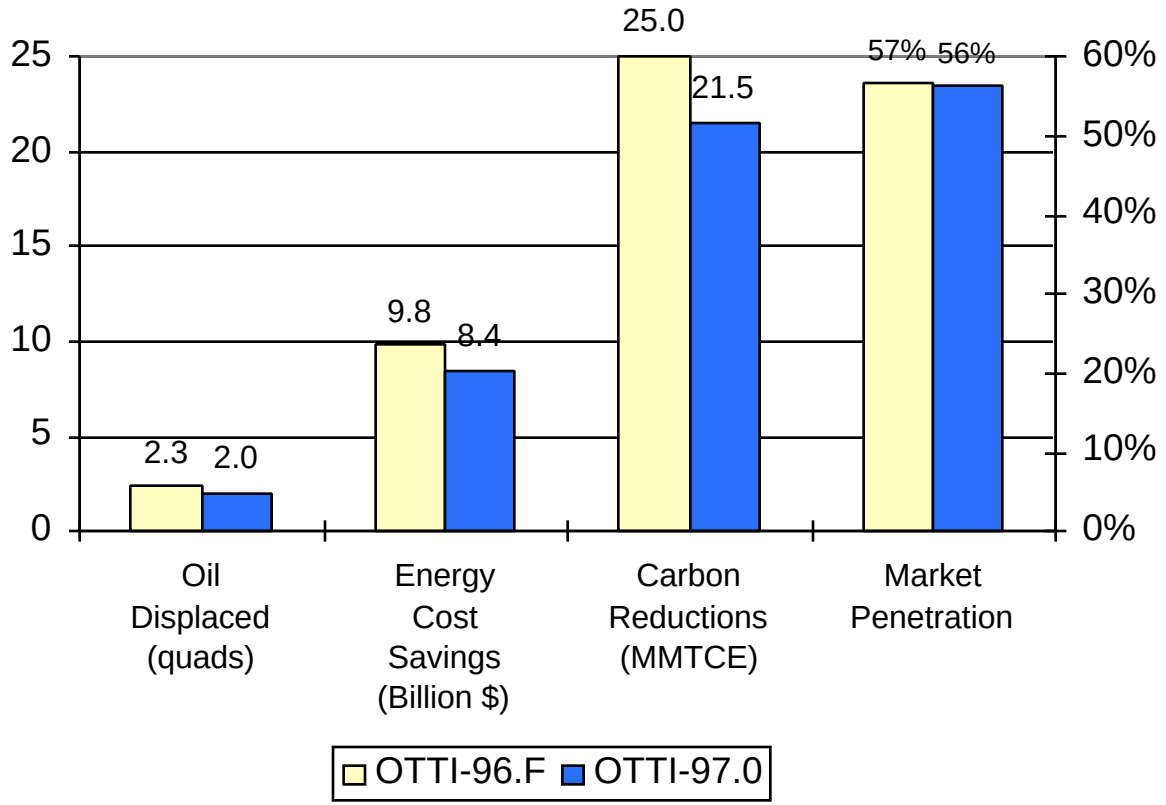
- New York 1996 (122 respondents) Yes 33%
- New York 1997 (69 respondents) Yes 48%

Light Vehicle Diesel Fuel Economy Improvements

- Santini (20% to 39%)
- Duleep (36% to 53%)
- Santini's analysis of VW Passat (TDI) 38% mpg gain when normalized for performance and Btu equivalence

Scenario Comparison

For year 2010



Fuel Lifecycle Models

	M. Wang GREET	M. Delucchi (PO)
Oil Use	Yes	
Energy Use	Yes	
Heavy Truck Analysis		Yes
GHG's Addressed	3	8
Year of Analysis	2005	Any
Particulate Matter	PM-10	PM-10, PM-2.5
Biomass Types	2	1
Baseline Fuel	RFG	RFG or Conv. Gas
Software	EXCEL 5.0	Lotus
Published	Yes	
Best Documented		Yes

Fuel Cycle Analysis Comparison - EA vs. Wang

- EA uses same fuel economy for all vehicles
  Wang has diesel 10% better and M85 and E85 4% better than conventional gasoline
- EA used Tier I or ULEV Standards
  Wang used emissions from EPA's MOBILE 5a
- EA used conventional gasoline as the baseline
  Wang uses RFG

OTT Climate Change Initiative

Question:

How would OTT expenditure of a possible $50 million per year change for GHG reductions?

Method:

- Use QM'98 as the base case (GHG reductions in the '98 budget)
- Compare GHG reductions for the stand-alone technologies that receive up to $50 million against the base case.

Assumptions for OTT Climate Change Initiatives

Light Truck Dieselization

- $25 million allows fuel economy gain to be 40% over conventional gasoline
- Technology begins market penetration in 2003

Comprehensive Deployment

- $50 million creates incentives which improves new vehicle fuel economy 5 mpg for 5% of sales in 1998, growing to 50% of sales by 2003

Assumptions for OTT Climate Change Initiatives

Enhanced PNGV

- $50 million accelerates the introduction of 2x vehicles
- Cost increment for 2x vehicle is 10% in 2005 and declines to 3% by 2010
- Penetration starts in 2000 for large cars, 2003 for small cars, 2006 for passenger trucks, and is not in cargo trucks

National Vehicle Preference Survey

- 47 states (excluded California, Alaska, Hawaii)
- Telephone Survey (August to November 1995)
- 1903 Respondents

How $100 Would Be Allocated To Help Solve 5 Stated Problems

$28 - Schools

$26 - Crime

$18 - Pollution

$15 - Unemployment

$13 - Dependence on Foreign Oil

To Solve Foreign Oil Dependence

47.5% - Switch fuels

38.4% - Increase Vehicle MPG

14.0% - Drive Less

The Dohring Company Online

Conducted 1996 National Automotive Consumer Study as a service to the automotive industry.

Dohring is America's largest provider of custom market research to the retail automotive industry

- Employs 100 full time staff
- Conducted over 300,000 interviews in 1995 alone
- This was a December 1995 telephone survey that had 1253 respondents
- Respondents intended to purchase a new or used vehicle in the near future from a new vehicle dealership

Sport Utility Vehicles (SUV's) - Selected Findings

- 48.5% of SUV buyers will switch from driving a car
- 53.8% of SUV buyers will be women
- 38.0% of SUV buyers have online services (27% all others) 67% of these will use online service to obtain vehicle information

ORNL Analysis

- Edition 17 of the Transportation Energy Data Book will be available in draft form near the end of May
- The estimated U.S. military expenditures to defend Middle East oil supplies was $32 billion in 1996. A final report on this analysis will be available April 21.
- An analysis of the causes for the rise and fall in the light duty diesel sales in the U.S. between 1974 and 1987 will be available in final draft form April 23.
    - Economic (fuel and vehicle prices)
    - Environmental (pollution standard changes)
    - Vehicle and Fuel Attributes (fuel availability and odor, vehicle noise, acceleration, starting, pollution and quality

Changes in AEO'96 vs. AEO'97

For year 2010

	Percent Change
Transportation Oil Use (quads)	7.30%
Light Duty VMT (billions)	5.20%
Fuel Use (LDV)	9.40%
Fuel Prices $1MBTU	
Motor Gasoline	-10.80%
Natural Gas	4.00%
Electricity	-8.10%
Diesel	-4.80%

Oil Reduction Comparison

Lightweight Conventional Vehicles vs. Hybrids

Driving Cycles	Grid Independent	Grid Connected
New York	61%	73%
EPA City	43%	64%
REP 05	*	29%
* could not perform this cycle		